# INDEX

METALLURGIST

Volume 20, Numbers 1-12, 1976

# METALLURGIST

## Volume 20, Numbers 1-12, 1976

(A translation of Metallurg)


### A

Abashkina, R. I. - 624
Abdaladze, V. - 118
Ablozhei, V. A. - 398
Abramenko, V. I. - 48
Abramov, V. V. - 695
Adamtsevich, R. A. - 607
Afonin, S. Z. - 548
Aksyuchits, N. N. - 768
Aleinikov, N. G. - 687
Aminov, M. S. - 527
Anaiko, É. D. - 40
Andreev, V. A. - 257
Andreev, V. I. - 786
Antonenko, V. S. - 280
Antonov, V. A. - 564
Antonov, V. M. - 527
Antonova, N. V. - 328
Antropova, N. G. - 471
Anufriev, O. K. - 312
Arist, L. M. - 384
Artemov, N. V. - 706
Artishchev, V. G. - 609, 691
Ashpin, A. - 536
Astakhova, N. I. - 538
Astapchik, B. A. - 457
Azarova, N. G. - 685
Azbukin, V. D. - 542

### B

Babai, B. F. - 198
Babushkin, N. M. - 527
Bakhcheev, V. G. - 116, 619
Balashov, Yu. I. - 261
Baranova, V. A. - 617
Baranovskii, A. F. - 346
Basalaev, V. I. - 634
Bashmakov, Yu. V. - 393
Bas'yas, I. P. - 542
Batalov, A. G. - 776
Bazilevich, S. V. - 92
Beda, N. I. - 419, 786
Beilinov, M. I. - 770
Belenkov, V. E. - 416
Belichenko, A. I. - 393
Belov, V. V. - 704
Berin, A. L. - 315
Bershtein, R. S. - 28, 452
Bliskun, A. V. - 827
Blokh, G. A. - 419
Bobylev, Yu. V. - 790
Bochkov, N. G. - 48
Bogachev, G. I. - 180
Bogatenkov, V. F. - 116
Bogatkin, M. A. - 762
Bolotnyi, V. M. - 481
Borevskii, V. M. - 70, 471
Borisenko, G. S. - 44
Borisenko, I. G. - 695
Borisenko, S. A. - 706
Borisov, V. A. - 270
Borodaevskii, V. K. - 250
Borodavkin, I. T. - 632
Borodii, N. P. - 201, 339, 479, 567
Braginets, N. G. - 533
Braverman, E. M. - 37, 751
Breus, V. M. - 186
Brodov, A. A. - 223
Brodskii, U. I. - 124
Bronnikov, V. K. - 412
Brosalin, P. A. - 772
Budnik, A. A. - 695
Bugaevskii, N. G. - 605
Buivid, B. I. - 236
Bukhvalov, O. B. - 486
Bukina, A. F. - 685, 838
Bulatnikov, E. A. - 98
Bulatnikov, E. I. - 348
Bulatov, Yu. I. - 496
Bulgakov, V. P. - 337, 615
Bul'skii, A. M. - 697
Burakovskii, G. P. - 473
Burgutin, Yu. I. - 386
Burov, S. D. - 328
Buzhinskii, A. A. - 102, 527
Byali, L. A. - 18
Bykov, V. A. - 783
Bykov, Yu. I. - 605

### C

Chekanov, V. S. - 37
Chekhomov, O. M. - 832
Chelovan', M. I. - 484
Chernoivan, V. P. - 408
Chernokhlebov, N. G. - 446
Chernolutskii, V. - 841
Chernov, Y. V. - 254
Chernyatin, A. N. - 455
Chikalenko, G. A. - 685, 838
Chirkov, I. - 62, 278, 719, 738
Chukhnin, B. V. - 425
Chumicheva, N. P. - 419

### D

Dalada, A. I. - 317
Danilevich, I. - 721
Davydenkov, E. I. - 469
Deev, V. A. - 469
Deineko, N. A. - 473
Dement'ev, V. M. - 751
Demina, L. E. - 419
Derevyanko, V. I. - 786
Deriglazov, E. S. - 564
Dernovoi, V. A. - 343
Devyatchenko, L. D. - 559
Dibrov, S. I. - 305
Didenko, V. V. - 312
Dmitriev, I. A. - 623
Dolgorukov, Yu. A. - 624
Dolgov, E. V. - 572
Dolzhikov, V. P. - 715
Dontsov, M. S. - 398
Doronin, V. A. - 515
Dorovskikh, I. V. - 42
Drimbo, A. V. - 391
Drozdetskaya, K. S. - 783
Drozdetskaya, L. V. - 852
Drozdov, N. I. - 734
Dubina, Yu. G. - 770
Dubinskii, B. E. - 343
Dubov, V. I. - 353
Dubrovin, G. V. - 280
Dudka, I. I. - 817
Dunaev, N. E. - 170
Dyankova, L. V. - 25
Dzamashvili, N. - 493
Dzigan, V. P. - 282
Dzigvashvili, G. A. - 337

### E

Efimova, D. S. - 687
Efremov, V. I. - 270
Eftifeev, V. I. - 469
Elizarov, A. G. - 623
Elmanova, V. I. - 706
El'tsov, K. S. - 30
Entov, O. I. - 572
Épov, A. A. - 396
Ermakov, V. V. - 44, 706
Ermakova, L. G. - 706
Ermankovich, R. P. - 850
Ermolaev, V. V. - 455
Ermolyuk, L. A. - 421
Erokhin, A. V. - 860
Erokhin, V. D. - 762
Esin, M. I. - 545
Evchenko, G. I. - 619
Evdokimov, A. V. - 617
Evteev, D. P. - 183

Evtifeev, V. I. - 257
Evtushenko, I. M. - 480
Evtushenko, L. - 233

F

Fedchenko, V. M. - 42, 545
Fedorenko, N. V. - 96, 459
Fedorov, M. I. - 563, 702
Fedotov, P. B. - 527
Fedyukin, A. A. - 697
Fel'dman, A. I. - 480
Fel'dsherov, V. S. - 486
Ferapontova, V. N. - 438
Filatov, I. E. - 302
Filatov, S. K. - 324, 832
Filipov, V. M. - 334
Fishkin, I. B. - 406
Fitisov, V. M. - 52
Flerova, M. I. - 693
Flyagin, V. G. - 768
Fomenko, V. N. - 309
Fomkin, N. I. - 270
Fotov, A. A. - 588
Frantsenyuk, I. V. - 792, 846
Frenkel', M. M. - 386
Frolochkin, V. V. - 57, 476, 630, 779
Frolov, Yu. A. - 173, 452
Fursov, N. N. - 836

G

Galiev, G. G. - 98
Galius, V. I. - 44
Galyamov, R. N. - 396
Gamtsemlidze, G. A. - 47, 615
Gamzaev, Yu. D. - 568
Gapshenko, A. L. - 836
Gavrikov, B. I. - 425
Gavrilenko, N. G. - 353
Gelerman, M. M. - 201, 339, 479, 567
Genshaft, A. G. - 317
Getiya, I. G. - 57, 476, 706, 779
Getiya, S. I. - 630
Get'man, P. I. - 352
Getmanets, V. V. - 487
Ginzburg, B. I. - 786
Gitter, V. M. - 401
Gladkii, M. - 231
Glazyrin, B. S. - 768
Glushchenko, Yu. N. - 457
Glushkov, A. I. - 621
Gokhberg, G. É. - 850
Golev, V. D. - 559
Golov, G. V. - 25, 180
Goloviznin, É. P. - 393
Goloyadov, D. A. - 44
Gol'tsev, V. I. - 398, 408
Goncharov, Yu. G. - 370
Goncharov, P. G. - 592
Gorai, B. - 157
Gorbunov, G. A. - 57, 630
Gordeeva, S. - 493
Gordienko, V. A. - 98
Gordienko, V. S. - 481
Gorodetskii, A. N. - 384
Gorskii, L. A. - 817
Gostev, N. K. - 598
Grafman, S. M. - 751
Gratsilev, V. M. - 177
Grebeshkov, A. T. - 321
Gridnev, F. A. - 678
Grigorenko, G. M. - 30
Grigorenko, S. M. - 611
Grigoryan, G. G. - 478
Grinberg, D. L. - 48, 274
Grishkova, A. A. - 386
Grushko, Yu. A. - 467
Gruznov, A. K. - 846
Gryzlov, E. G. - 697
Gubanova, V. I. - 680
Gubert, S. V. - 211
Gudimov, G. G. - 50
Gukas'yan, V. V. - 647
Gulevskii, E. V. - 772
Gulyaev, G. I. - 556
Gusakov, V. - 759
Gusev, E. S. - 173, 459
Gusev, V. P. - 418
Gusev, V. F. - 257

I

Ibatulina, K. A. - 267
Ioffe, Ya. E. - 560
Isakov, M. T. - 398
Isupov, A. L. - 710
Ivanov, I. N. - 538
Ivanov, R. M. - 762
Ivanov, V. M. - 680
Ivanov, V. P. - 239

K

Kablukovskii, A. F. - 186
Kachan, P. A. - 535
Kagan, V. I. - 408
Kagolovskii, A. E. - 384
Kalashnikov, A. - 508
Kalinichenko, P. G. - 391
Kalinkin, N. I. - 662
Kalugina, L. S. - 473
Kalyakin, V. V. - 827
Kaplienko, V. N. - 123
Kaplun, M. G. - 480
Kapuntsev, Yu. D. - 564
Karasekova, M. V. - 273
Karlanskii, Z. P. - 635
Karlyuk, V. I. - 467
Karmazin, G. N. - 250
Karpov, A. G. - 239
Karpov, E. I. - 706
Karpov, N. D. - 548
Karpov, S. P. - 762
Karpushchenko, V. - 650
Karyshev, L. N. - 680
Kashira, A. A. - 706
Kasimov, I. A. - 670
Katan, A. S. - 336
Kavtrev, V. M. - 790
Ket'ko, K. K. - 193
Khaikin, S. N. - 559
Khalmanov, F. S. - 357, 427, 668
Khandusenko, L. P. - 265
Kharchenko, G. N. - 410
Kharchevnikov, A. I. - 125
Kharitonov, A. S. - 328
Khelemendik, V. D. - 469
Khesin, Yu. I. - 53
Khes'ko, V. A. - 765
Khmelev, A. S. - 832
Khmirov, V. I. - 834
Khoinyak, É. A. - 471
Khokhlov, A. V. - 396
Khokhlov, V. M. - 834
Kholmetskii, I. L. - 462, 817
Khovrin, B. V. - 198, 844
Khristenko, V. K. - 704
Khukharev, N. I. - 273
Kitaev, V. N. - 827
Kiyashko, Yu. M. - 457
Klassen, É. Ya. - 634
Kleeberg, V. V. - 144, 216
Klement'ev, A. I. - 440
Klimov, Yu. A. - 647
Kobiashvili, R. I. - 47
Kobyakov, N. S. - 563, 702
Kobylyakov, I. I. - 464
Kochetov, N. N. - 180
Kochlamasashvili, B. T. - 47
Kogan, L. M. - 331
Kolbin- A. - 298
Kolesnik, I. L. - 820
Kolesnik, I. Ya. - 467
Kolesnikov, Ya. E. - 44
Kolmogortsev, V. B. - 746
Koloda, S. F. - 753
Kolosova, É. L. - 617
Kolyasnikov, M. P. - 762
Komanovskii, A. - 480
Komarov, S. N. - 270
Komissarchik, Yu. G. - 472
Komlev, A. V. - 273
Kondrat'ev, V. V. - 664
Kondratova, G. G. - 690
Konovalov, Yu. V. - 669
Konovalova, G. I. - 621
Korkodinov, Yu. A. - 776
Kornfel'd, V. N. - 257
Kornilov, L. N. - 324
Kornilov, V. I. - 704
Korobov, A. G. - 790
Korobov, V. V. - 98
Korokhov, V. G. - 554
Korol,, O. B. - 575, 640
Korotchenko, R. L. - 191
Korotkov, A. N. - 30
Korshikov, S. V. - 605
Korytnyi, V. N. - 124
Korzh, A. T. - 245
Koshelev, S. P. - 177
Kostin, Yu. D. - 712
Kostyukov, I. I. - 3
Kotel'nikov, I. V. - 312
Kotov, A. p. - 18

Kotsar', S. L. - 478
Kovalev, P. I. - 827
Kovyrshin, E. V. - 312
Kozlov, A. V. - 102
Kozlovskii, V. S. - 343
Krashevich, V. N. - 848
Kravchenko, F. P. - 462
Krivonosov, V. I. - 98
Krivosheiko, A. A. - 545
Kryachko, G. Yu. - 820
Kryzhanovskii, S. V. - 98
Kudar', V. Ya. - 173
Kudryavaya, N. A. - 191
Kudryavtsev, A. R. - 412
Kukarekin, G. - 155
Kulichenko, V. A. - 325
Kul'kova, M. N. - 186
Kul'vanovskaya, N. I. - 309
Kuporov, V. N. - 228, 515
Kurakin, A. V. - 127
Kurdyukov, A. A. - 47
Kurganov, V. A. - 695
Kurilov, P. G. - 53, 812
Kurkula, I. T. - 469
Kutsenko, O. B. - 776
Kutsyngi, V. D. - 336
Kuvshinnikov, A. N. - 8
Kuz'menko, A. G. - 265
Kuznetsov, L. K. - 112
Kuzub, A. G. - 600

## L

Labunovich, O. A. - 542
Ladyzhenskaya, A. L. - 712
Lakomskii, V. I. - 30
Lapin, L. I. - 476, 630, 779
Larionov, E. D. - 768
Laushkin, N. P. - 127
Lazarev, B. L. - 102
Lebed', P. K. - 315
Lebedev, G. P. - 501
Lekin, P. V. - 598
Leporskii, S. V. - 690
Levchunov, M. A. - 779
Levin, M. Z. - 600
Levitan, S. M. - 554
Levshunov, M. A. - 476
Likhachev, E. N. - 643
Lisachenko, A. I. - 627
Lisovskii, B. M. - 662
Litovchenko, A. P. - 267
Litvinenko, V. G. - 523
Litvinov, I. V. - 64, 359
Livshits, A. L. - 677
Lobeev, E. N. - 159
Loginov, V. I. - 245, 315, 820
Lokh, I. A. - 533
Lukashevich, A. B. - 786
Lukovnikov, V. V. - 40
Lyadnov, V. B. - 770
Lyambakh, R. V. - 363
Lyapin, Yu. V. - 768
Lyasota, A. F. - 751
Lykin, A. A. - 829
Lyskov, E. P. - 96

## M

Machikin, V. I. - 600
Maikher, P. B. - 709
Makarenko, A. K. - 695
Makarov, L. P. - 170
Makhnin, V. S. - 336
Maksimova, L. I. - 658
Mal'chenko, T. V. - 257, 469
Malkin, B. S. - 412
Malyi, V. M. - 715
Malyshev, A. I. - 50
Mamaev, B. A. - 295
Manevich, V. A. - 52
Marinchuk, L. Z. - 125
Markov, Yu. I. - 548
Mashkov, G. A. - 600, 677
Maslei, P. S. - 709
Mateshvili, M. M. - 47
Matsak, P. I. - 469
Matveev, B. N. - 706
Mayakin, A. V. - 336
Mednikov, Yu. A. - 704
Medzhibozhskii, M. Ya. - 611, 829
Megrelishvili, G. M. - 47
Mel'nikov, B. M. - 776
Menyailenko, A. I. - 395
Menzarev, I. K. - 408
Merker, É. E. - 325
Mezinin, N. A. - 67, 861
Mikhailov, A. S. - 632
Mikhnevich, V. F. - 548
Mil'grom, D. G. - 317
Milovatskii, N. M. - 658
Minenko, V. A. - 53, 812
Minevich, V. Ya. - 770
Minnibaev, R. Sh. - 257
Miroshnikov, I. K. - 478
Mirshavka, V. P. - 817
Mishchenko, I. M. - 98
Mishin, P. P. - 177, 457
Mogilevkin, F. D. - 57, 476, 630, 779
Moiseev, V. A. - 98
Molchanova, Z. V. - 857
Molgachev, A. I. - 131, 738
Molonov, G. D. - 334
Morozenko, V. N. - 638
Morozov, V. A. - 173
Moskalev, A. N. - 710
Moshkevich, E. I. - 30
Mudrov, V. G. - 635
Mukhametzyanov, F. A. - 261
Mukhin, Yu. A. - 846
Muraenko, S. I. - 123
Murasov, A. V. - 852
Murinets, S. V. - 564
Musikhina, M. K. - 545
Mustafin, N. V. - 324

## N

Nalcha, G. I. - 690
Natapov, A. S. - 844
Naumkina, I. V. - 421
Nedodaev, I. E. - 552
Neginskii, B. M. - 386
Nepomyashchii, A. G. - 42
Nerubashchenko, L. N. - 687
Neyasov, A. G. - 598
Nikitin, A. N. - 552, 834
Nikokoshev, N. T. - 765
Nikolaev, K. A. - 98
Nikolaev, V. N. - 325
Norkin, V. - 854
Noskov, A. A. - 191
Nosova, T. E. - 116
Novikov, I. D. - 161, 729

## O

Ocheretnyuk, F. F. - 261
Odintsova, G. F. - 717
Ogarkov, Yu. N. - 102
Okhrimovich, B. P. - 619
Oleinik, A. A. - 123
Oleshko, V. L. - 605, 678
Orininskii, N. V. - 180
Orlov, A. F. - 715
Orlova, T. A. - 125
Osadchii, V. Ya. - 476, 630, 779
Osadchii, Ya. P. - 807
Osipenko, P. E. - 809
Osokin, G. F. - 267
Ostrovskii, L. R. - 693
Ovsyannikov, V. G. - 836
Ozhiganov, V. S. - 741

## P

Pak, G. P. - 690
Pakhomov, A. I. - 30
Panfilov, M. I. - 180
Pankov, V. K. - 709
Parasyuk, P. F. - 510
Parshin, A. A. - 554
Parshin, V. A. - 204, 563
Pasechnik, V. K. - 342, 852
Pashchenko, N. K. - 697
Pashin, I. I. - 400
Paton, B. E. - 30
Pavlov, I. M. - 267
Pechkova, T. A. - 422
Permyakov, G. A. - 173
Pershina, R. F. - 693
Pertsev, M. A. - 435
Peskov, A. V. - 776
Petrov, S. N. - 770
Petrov, V. A. - 559
Pilipchatin, A. D. - 542
Pivovarov, F. I. - 12
Pleten', I. A. - 336
Podannikova, T. I. - 321

Podzerko, V. A. - 655
Polevoi, G. A. - 408
Polonskii, L. S. - 554
Polotskii, B. - 276
Polyakov, B. A. - 478
Polyakov, L. M. - 619
Polyurovskii, Yu. V. - 706
Ponomarev, F. P. - 98
Popov, M. A. - 563, 702
Popov, V. K. - 410
Porokhnya, G. P. - 124
Portnov, A. - 15
Postupailo, L. Ya. - 37
Potapov, N. M. - 353
Potrusaev, A. P. - 762
Poyurovskii, Yu. V. - 44
Pozdeev, A. A. - 790
Pozdeev, A. I. - 702
Pozdeev, N. P. - 542
Pritykin, D. P. - 28
Privalov, M. M. - 289
Prokhorov, V. N. - 746
Protasov, A. P. - 495, 788
Pryakhin, V. A. - 568
Psel, M. I. - 478
Pshenichnikov, M. A. - 302
Pykhteev, G. Z. - 637

## R

Rabinovich, D. M. - 563, 617, 702
Rabinovich, O. Ya. - 704
Radin, F. A. - 790
Raichenko, T. F. - 471
Rapchinskaya, S. E. - 419
Razikov, M. I. - 204
Rebrov, A. N. - 467
Rebrov, L. V. - 611
Reznik, I. G. - 321
Reznikov, S. A. - 44, 706
Reznikov, Yu. A. - 605, 678
Robak, R. A. - 20
Robustov, A. - 506
Rogozhnikova, L. A. - 552
Romanchenko, V. L. - 844
Romanov, O. I. - 334
Rozhavskii, L. I. - 386
Rozin, S. E. - 545
Rozovskii, L. D. - 180
Rubinshtein, S. I. - 609
Rudzit, V. A. - 206
Rumyantsev, V. I. - 418
Ryabushkin, V. I. - 704
Ryazantsev, V. D. - 548
Rybina, M. P. - 131, 583
Rylov, A. S. - 391

## S

Safonov, L. I. - 342
Safronov, M. F. - 23
Saf'yanov, A. V. - 476, 630, 779
Sagal'chik, L. M. - 467
Salamatov, L. G. - 756
Samokhin, N. I. - 823
Sapelkin, N. F. - 334
Satskii, V. A. - 198
Sautkin, N. I. - 110
Sedov, V. I. - 554
Sedykh, N. A. - 123
Serebryakov, V. S. - 563, 702
Sergeev, B. M. - 350, 504, 523
Sergeev, I. I. - 412
Serova, A. M. - 560
Shakhtarina, V. V. - 473
Shapiro, A. Sh. - 138
Shapkin, I. I. - 209
Shapovalenko, V. V. - 391
Shapovalov, A. P. - 846
Shashkov, V. B. - 42
Shatlov, V. A. - 309
Shavrin, S. V. - 102
Shcherbak, V. G. - 823
Shcherbakov, A. I. - 254
Shcherbilis, I. A. - 42
Shebalenkova, E. K. - 48
Sheikh-Ali, A. D. - 630
Sheiko, I. V. - 30
Shelestyukov, Yu. S. - 834
Shemyakin, V. S. - 829
Shepel', L. T. - 186
Shevbunov, É. V. - 836
Shevchenko, V. I. - 848
Shevtsov, A. I. - 844
Shikin, A. M. - 282
Shipulin, M. F. - 827
Shipulin, V. I. - 706
Shipunov, D. V. - 605
Shishkin, L. I. - 37
Shishikina, O. S. - 645
Shitov, V. N. - 605
Shiyan, V. G. - 487
Shklyar, F. R. - 527
Shkurko, I. I. - 776
Shlepper, Ya. A. - 532
Shlionskii, M. S. - 127
Shmalenyuk, R. P. - 273
Shpyrev, A. P. - 476, 630, 779
Shtromberg, Ya. A. - 59
Shub, L. G. - 116, 832
Shulaev, I. P. - 119
Shul'kin, M. L. - 116, 762
Shurchko, L. N. - 342
Shurkhal, V. A. - 242
Shvets, M. N. - 317
Shvetsov, V. V. - 846
Sidorenkova, I. V. - 96
Sidorin, G. N. - 408
Sidorov, M. - 428
Sikharulidze, G. Sh. - 47
Silaev, N. S. - 110
Simkin, V. S. - 282
Sinel'nikov, V. A. - 762
Sinichkin, A. P. - 252
Sinitsa, I. I. - 198
Sirenko, O. F. - 607
Skladanovskii, E. N. - 252, 600, 677
Skryabin, N. P. - 776
Slepenko, D. D. - 123, 124
Smolii, V. I. - 844
Soibel', M. E. - 418
Sokhach, B. A. - 112
Sokol, A. N. - 532
Sokol, V. N. - 532
Sokolov, L. V. - 270
Sokolov, O. N. - 321
Sokolova, T. V. - 223
Solodova, L. I. - 768
Solodun, D. I. - 52
Solomatin, S. M. - 245
Sorin, M. N. - 548
Soroka, V. V. - 391
Sorokin, V. N. - 762
Sotnikov, Yu. I. - 415
Spiridonova, S. I. - 860
Spirin, A. M. - 600
Stal'skii, A. I. - 643
Stambulzhi, L. P. - 533
Stankevich, V. A. - 693
Starchenko, D. L. - 484
Starkov, Yu. A. - 768
Staroseletskii, M. I. - 848
Stekachev, V. I. - 177
Stepanov, A. T. - 325
Stepanov, N. A. - 112
Stepanov, V. V. - 252, 600
Stepina, A. I. - 607
Stets, P. D. - 695
Stetsenko, N. V. - 481
Stobbe, L. G. - 559
Strekalovskii, M. M. - 619
Stroganov, A. I. - 112
Struchkov, N. Kh. - 527
Sukhareva, V. V. - 572
Sukhostat, S. A. - 712
Supruenko, R. S. - 28
Surov, S. P. - 270
Sushko, V. V. - 317
Svets, V. E. - 127
Sycheva, N. F. - 400
Syreishchikova, V. I. - 617

## T

Tager, L. R. - 270
Tantsyrev, O. V. - 768
Tapilin, I. T. - 324
Tarabara, S. - 550
Taranovskii, V. V. - 309
Tarasova, L. A. - 110
Terekhova, A. I. - 267
Timofeev, A. N. - 282
Timofeev, S. V. - 112
Timoshenko, B. I. - 638
Titov, N. P. - 34
Tkachenko, A. S. - 850
Tkachenko, V. A. - 195
Tkachev, V. V. - 44
Tokarenko, A. A. - 836
Tokarev, L. S. - 746
Tokovoi, O. K. - 396
Tolochko, M. T. - 443
Tolstov, I. A. - 204

Torkhov, G. F. - 30
Tovorovskii, I. G. - 648
Trakshinskii, R. B. - 715
Treister, Yu. Ya. - 401
Tret'yakov, E. V. - 104, 331, 864
Trifonov, O. V. - 690
Trofimova, K. G. - 328
Troshchenko, L. M. - 44, 706
Tseitilin, M. A. - 177, 457
Tsybanev, E. G. - 198, 265, 844
Tsybur, S. V. - 471
Tsypin, S. Ya. - 548
Tubol'tsev, Yu. G. - 848
Tulainov, E. I. - 706
Tulupov, A. F. - 495
Turusov, L. V. - 861
Tutova, L. V. - 717
Tychinina, L. - 683

U

Usenko,L. - 348
Usov, M. A. - 680
Ustimenko, I. Ya. - 312
Ustinov, N. V. - 110

V

Vagin, V. V. - 607
Valetov, M. S. - 848
Val'tsov, V. V. - 792
Vain, R. S. - 455
Vanzha, A. N. - 37, 751
Varshavskii, A. P. - 829
Vasyunina, S. A. - 419
Vegner, B. B. - 527
Velikin, B. A. - 469
Venetskii, S. - 284, 577, 795
Vinogradov, N. M. - 40
Vinogradov, V. M. - 141, 367
Vinokurov, I. Ya. - 180, 560, 563, 617, 702
Vishnevskii, D. I. - 263
Vishnyakov, V. G. - 282
Voitov, A. O. - 257
Volkov, L. G. - 770, 776, 834
Volodarskii, A. V. - 823
Voloshanenko, V. A. - 772
Vol'pert, M. Ya. - 386
Voronin, D. S. - 860
Voronin, I. G. - 324, 832
Voroshilov, Yu. I. - 680
Vydrina, ZZh. A. - 25
Vysotskii, A. M. - 860

Y

Yakimenko, V. D. - 152
Yakimenko, V. I. - 697
Yakovenko, A. T. - 252
Yakovlev, V. I. - 765
Yakusheva, M. D. - 116
Yakushina, L. A. - 342
Yarmolenko, A. I. - 635
Yaroshenko, N. M. - 315
Yaroshevskii, S. L. - 312
Yarovinskii, E. A. - 384
Yusupov, R. B. - 598
Yutina, A. S. - 548

Z

Zabludovskii, A. - 408
Zadumin, V. V. - 634
Zaichenko, M. V. - 34
Zainutdinov, R. N. - 564
Zairulin, R. N. - 545
Zalevskii, M. A. - 252, 600
Zashivaiko, P. A. - 449
Zavodilenko, A. I. - 545
Zemenkov, A. A. - 410
Zemlyanoi, N. G. - 40
Zgur'ev, I. I. - 328
Zhabin, I. Ya. - 270
Zheltonozhskii, N. A. - 643
Zhernovskii, V. S. - 334, 829
Zhigailo, M. - 519
Zhila, V. D. - 772
Zhordaniya, I. S. - 47, 337, 615
Zhunev, A. G. - 459
Zhurukhin, M. I. - 486
Zimin, A. K. - 556
Zimovets, V. G. - 704
Zin'kovskii, M. M. - 135
Zinurov, I. Yu. - 112
Zmeev, Yu. L. - 790
Zolotenkova, N. G. - 706
Zotov, V. V. - 607
Zverev, B. N. - 459
Zverev, L. I. - 204

METALLURGIST

Volume 20, Numbers 1-12, 1976

(A translation of Metallurg)

## VOLUME 20, NUMBER 1, JANUARY, 1976

| | Engl./Russ. |
|---|---|
| At the Start of the 10th Five-Year Plan – I. I. Kostyukov | 3 1 |
| METALLURGISTS' PRE-CONGRESS CAMPAIGN | |
| Labor Successes Originate in Competition – A. N. Kuvshinnikov | 8 4 |
| LEADING WORKERS' METHODS FOR ALL | |
| Study and Dissemination of Advanced Methods at the Magnitogorsk Metallurgical Combine – F. I. Pivovarov | 12 6 |
| More Goods, of High Quality and in Greater Variety – A. Portnov | 15 8 |
| CAST IRON | |
| Behavior of Sinter and Pellets in a 2700-$m^3$-Capacity Blast Furnace – A. P. Kotov and L. A. Byalyi | 18 10 |
| Analysis of a Blast-Furnace Informational Model – M. F. Safronov | 23 14 |
| Increasing the Life of Blast-Furnace Tuyere Nozzles – L. V. Dyankova, Zh. A. Vydrina, and G. V. Golov | 25 15 |
| A Chain Conveyor Machine for Calcining Limestone – R. S. Bershtein, D. P. Pritykin, and R. S. Suprunenko | 28 17 |
| STEEL | |
| Production of Large High-Nitrogen Steel Ingots by Consumable Plasmatron Remelting – B. E. Paton, K. S. El'tsov, V. I. Lakomskii, I. V. Sheiko, G. M. Grigorenko, G. F. Torkhov, A. N. Korotkov, A. I. Pakhomov, and E. I. Moshkevich | 30 19 |
| Guniting Open-Hearth Furnace Roofs during Running Repairs – M. V. Zaichenko and N. P. Titov | 34 21 |
| Cooling Panels for the Open-Hearth Furnace Front Wall – E. M. Braverman, A. N. Vanzha, L. Ya. Postupailo, A. A. Kurdyukov, V. S. Chekanov, and L. I. Shishkin | 37 23 |
| Open-Hearth Furnace Operation with the Checkerwork Partly Covered – N. M. Vinogradov, V. V. Lukovnikov, N. G. Zemlyanoi, and É. D. Anaiko | 40 26 |
| Life of Conversion Cast Iron Molds Alloyed with Khalilovo Pig Iron – I. A. Shcherbilis, V. B. Shashkov, V. M. Fedchenko, A. G. Nepomnyashchii, and I. V. Dorovskikh | 42 27 |
| ROLLED PRODUCTS | |
| Pilger Rolling of Tubing with Tighter Inside Diameter Tolerances – Yu. V. Poyurovskii, Ya. E. Kolesnikov, S. A. Reznikov, V. V. Ermakov, L. M. Troshchenko, V. V. Tkachev, D. A. Goloyadov, G. S. Borisenko, and V. I. Galius | 44 28 |
| Increasing the Life of 500 Mill Roughing Stand Grooves – I. S. Zhordaniya, G. A. Gamtsemlidze, B. T. Kochlamasashvili, G. Sh. Sikharulidze, G. M. Megrelishvili, R. I. Kobiashvili, and M. M. Mateshvili | 47 29 |
| The Use of Inhibitors in Continuous Pickling Lines – N. G. Bochkov, D. L. Grinberg, E. K. Shebalenkova, and V. I. Abramenko | 48 30 |
| A Device for Feeding Billets to the Groove – A. I. Malyshev and G. G. Gudimov | 50 32 |
| Electrode Contact Hardening of Hot Disk Saws – V. A. Manevich, D. I. Solodun, and V. M. Fitisov | 52 33 |

| | Engl. | Russ. |
|---|---|---|
| HELP FOR THE SCHOOLS OF COMMUNIST LABOR | | |
| The Organization of Work and Rest for the Operators and Rollers of Blooming and Continuous Billet Mills – V. A. Minenko, P. G. Kurilov, and Yu. I. Khesin ... | 53 | 33 |
| PROTECTION OF LABOR | | |
| Improving the Working Conditions for Rollers on a 140 Tube Rolling Mill – I. G. Getiya, G. A. Gorbunov, F. D. Mogilevkin, and V. V. Frolochkin ..... | 57 | 37 |
| Three-Dimensional Planning Simulation in the Planning of Hot Shops – Ya. A. Shtromberg ..... | 59 | 38 |
| IN THE COMPETITION | | |
| All His Life – Creativity – I. Chirkov ..... | 62 | 41 |
| Public Inspection by the People's Universities of the Plants and Organizations of the Ministry of Ferrous Metallurgy of the USSR – I. V. Litvinov ..... | 64 | 42 |
| FROM THE HISTORY OF TECHNOLOGY | | |
| An Outstanding Russian Mechanical Engineer (The 250th Anniversary of the Birth of E. G. Kuznetsov) – N. A. Mezinin ..... | 67 | 43 |
| NEW BOOKS | | |
| N. F. Dubrov, H. H. Vlasov, and V. V. Korrol'. The Teeming of Steel. – Reviewed by V. M. Borevskii ..... | 70 | 45 |


VOLUME 20, NUMBER 2, FEBRUARY, 1976


| | | |
|---|---|---|
| To Greet the 25th Congress of the Communist Party of the Soviet Union ..... | 75 | 1 |
| Improving the Training and Upgrading of Personnel ..... | 88 | 9 |
| CAST IRON | | |
| Developments in the Production of Agglomerated Material in the 9th Five-Year Plan – S. V. Bazilevich ..... | 92 | 11 |
| Operation of Sintering Plant on Coke-Screening Sintering Ores Using a Composite Fuel – E. P. Lyskov, N. V. Fedorenko, and I. V. Sidorenkova ..... | 96 | 13 |
| Blowing-in a Blast Furnace with Natural Gas – G. G. Galiev, V. I. Krivonosov, F. P. Ponomarev, V. A. Moiseev, I. M. Mishchenko, V. V. Korobov, V. A. Gordienko, E. A. Bulatnikov, S. V. Kryzhanovskii, and K. A. Nikolaev .... | 98 | 15 |
| Vertical Probe for Measuring the Pressure Difference over Blast-Furnace Height – B. L. Lazarev, A. V. Kozlov, S. V. Shavrin, A. A. Buzhinskii, and Yu. N. Ogarkov ..... | 102 | 17 |
| STEEL | | |
| Steel Production in the 9th Five-Year Plan – E. V. Tret'yakov ..... | 104 | 19 |
| Using Ultrasonics to Intensify Metal Boiling in Continuous Casting Machine Molds – N. I. Sautkin, N. V. Ustinov, N. S. Silaev, and L. A. Tarasova ..... | 110 | 22 |
| Arc Furnace Gas Offtake Systems and Gas Extraction Pipe Designs – I. Yu. Zimurov, L. K. Kuznetsov, A. I. Stroganov, N. A. Stepanov, and S. V. Timofeev ..... | 112 | 24 |
| High-Speed Top Pouring of Low-Carbon Killed Steel – M. D. Yakusheva, L. G. Shub, M. L. Shul'kin, V. F. Bogatenkov, V. G. Bakhcheev, and T. E. Nosova ..... | 116 | 27 |
| Our Gift to the 25th Party Congress – V. Abdaladze ..... | 118 | 28 |
| ROLLED PRODUCTS | | |
| Rolling Production on the Threshold of the Tenth Five-Year Plan – I. P. Shulaev ..... | 119 | 29 |
| MECHANIZATION OF LABOR-INTENSIVE PROCESSES AT THE NIKOPOL' SOUTHERN TUBE MILL | | |
| Raising the Level of Labor Mechanization – B. A. Sokhach ..... | 122 | 31 |
| Flowlines for Tube Finishing – N. A. Sedykh, D. D. Slepenko, V. N. Kaplienko, A. A. Oleinik, and S. I. Muraenko ..... | 123 | 32 |
| Mechanization of Labor-Intensive Processes in the Mill Stores – U. I. Brodskii, V. N. Korytnyi, G. P. Porokhnya, and D. D. Slepenko ..... | 124 | 33 |

| | Engl. | Russ. |
|---|---|---|
| Billet Handling in the Continuous Rolling Mill – A. I. Kharchevnikov, T. A. Orlova, and L. Z. Marinchuk | 125 | 34 |
| Production Organization in the Roughing Mill Inspection and Conditioning Section – A. V. Kurakin, N. P. Laushkin, V. E. Svets, and M. S. Shlionskii | 127 | 35 |
| Delivery of High-Grade Rolled Stock at the First Request (Methods Used by the Crew of Communist Labor of No. 4 Brigade, Rail and Structural Mill, Kuznetsk Metallurgical Combine) – M. P. Rybina and A. I. Molgachev | 131 | 38 |
| LABOR PROTECTION | | |
| Labor Protection in the Tenth Five-Year Plan – M. M. Zin'kovskii | 135 | 40 |
| Individual Protection from Vibration – A. Sh. Shapiro | 138 | 41 |
| Methods Used by the Young Specialists' Council, Cherepovets Metallurgical Plant (A Young Specialist Comes to the Plant) – V. Vinogradov | 141 | 43 |
| INTERNATIONAL LINKS | | |
| The Metal of Friendship – V. V. Kleeberg | 144 | 46 |


VOLUME 20, NUMBER 3, MARCH, 1976


| | | |
|---|---|---|
| METALLURGISTS' ADDRESSES TO THE 25TH PARTY CONGRESS | | |
| Report of the Magnitogorsk Metallurgical Combine | 149 | 1 |
| Competition: The Guarantee of Success – V. D. Yakimenko | 152 | 3 |
| From the Rustavi Metallurgists to the Motherland | 154 | 4 |
| Our Labor for the Congress of Our Party – G. Kukarekin | 155 | 5 |
| Steelmakers in Competition – B. Gorai | 157 | 6 |
| To Work Even Better – E. N. Lobeev | 159 | 7 |
| No Relaxation in the Training of Personnel – I. D. Novikov | 161 | 8 |
| CAST IRON | | |
| Basic Trends in the Development of Blast-Furnace Production for the Period 1976-1980 (From Congress to Congress) – L. P. Makarov and N. E. Dunaev | 170 | 14 |
| Operating Experience Gained at the Sintering Plant Operated by the Bakal Ore Management – G. A. Permyakov, E. S. Gusev, V. A. Morozov, V. Ya. Kudar', and Yu. A. Frolov | 173 | 16 |
| Water-Cooled Lining for the Throat of a Blast Furnace – P. P. Mishin, V. M. Gratsilev, V. I. Stekachev, S. P. Koshelev, and M. A. Tseitilin | 177 | 18 |
| Production of Foamed Titanium Slag – I. Ya. Vinokurov, M. I. Panfilov, G. V. Golov, G. I. Bogachev, L. D. Rozovskii, N. N. Kochetov, and N. V. Orininskii | 180 | 20 |
| STEEL | | |
| Continuous Casting of Steel in the Ninth Five-Year Plan (From Congress to Congress) – D. P. Evteev | 183 | 22 |
| Quality of Uphill Cast and Electroslag Remelted Boiler Steel Ingots – V. M. Breus, A. F. Kablukovskii, M. N. Kul'kova, and L. T. Shepel' | 186 | 24 |
| Distribution of Oxygen among Open-Hearth and Twin-Bath Furnaces – N. A. Kudryavaya, A. A. Noskov, and R. L. Korotchenko | 191 | 28 |
| Silicate Enamel for Alloy Steel – K. K. Ket'ko | 193 | 30 |
| ROLLED PRODUCTS | | |
| The Tubing Industry in the Ninth Five-Year Plan and Its Development Direction in the Years 1976-1980 – V. A. Tkachenko | 195 | 31 |
| Operation of a 250-5 Small Shape Mill Using an Increased Weight Billet – V. A. Satskii, B. V. Khovrin, E. G. Tsybanev, B. F. Babai, and I. I. Sinitsa | 198 | 33 |
| A Roller Roll Guide for a Semicontinuous Medium Shape Mill – M. M. Gelerman and N. P. Borodii | 201 | 35 |

| | Engl. | Russ. |
|---|---|---|
| Facing Parts of Metallurgical Equipment with Np-25Kh10G10T Wire – I. A. Tolstov, M. I. Razikov, V. A. Parshin, and L. I. Zverev | 204 | 37 |
| PROTECTION OF LABOR | | |
| Concern for the Health of Metalworkers in the Ninth Five-Year Plan (From Congress to Congress) – V. A. Rudzit | 206 | 39 |
| Increasing Production Culture at the Makeev Plant – I. I. Shapkin | 209 | 40 |
| OUR SLOGAN – PROGRESS | | |
| On the 50TH Anniversary of the State Institute for the Planning of Metallurgical Plants – S. V. Gubert | 211 | 42 |
| INTERNATIONAL RELATIONS | | |
| The International Relations of the Central Committee of the Trade Union of Metallurgists in the Ninth Five-Year Plan – V. Kleeberg | 216 | 45 |


VOLUME 20, NUMBER 4, APRIL, 1976


| | | |
|---|---|---|
| THE TENTH FIVE-YEAR PLAN: EFFICIENCY AND QUALITY | | |
| Improving Quality and Extending the Range of Metal Products: a Vital Task for Metallurgists – N. F. Sklokin, A. A. Brodov, and T. V. Sokolova | 223 | 1 |
| SOCIALIST COMPETITION | | |
| Toward Steel of the Highest Quality – V. Kuporov | 228 | 4 |
| Giving Workers an Incentive to Improve Product Quality and Produce Metal to Order (Methods Used by the Dzerzhinskii Dnieper Metallurgical Plant) – M. Gladkii | 231 | 6 |
| Publicity: an Essential Requirement in Effective Socialist Competition – L. Evtushenko | 233 | 7 |
| Give Maximum Attention to Work with Young People – B. I. Buivid | 236 | 9 |
| COMRADE FOREMAN | | |
| A Foreman's Working Life – A. G. Karpov and V. P. Ivanov | 239 | 11 |
| CAST IRON | | |
| Effect of Oxygen Concentration in Gases of Sintering-Machine Ignition Hearths on Completeness of Combustion of Carbon Contained in Charge – V. A. Shurkhal | 242 | 12 |
| Experimental Melts with Blast Furnaces Charged with Mixture of Coke and Sinter – V. I. Loginov, S. M. Solomatin, and A. T. Korzh | 245 | 14 |
| Lining of Charge Hoppers with Polyethylene Sheeting – G. N. Karmazin and V. K. Borodaevskii | 250 | 18 |
| Kiln Used for Drying the Coatings of Evaporators Employed in Desulfurizing Apparatus – A. T. Yakovenko, E. N. Skladanovskii, A. P. Sinichkin, M. A. Zalevskii, and V. V. Stepanov | 252 | 20 |
| STEEL | | |
| Melting Square- and Rectangular-Cross-Section Ingots in Vacuum Arc Furnaces – Y. V. Chernov and A. I. Shcherbakov | 254 | 21 |
| Thermal Operation of Double-Bath Steel-Smelting Furnaces – V. A. Andreev, A. O. Voitov, V. F. Gusev, V. I. Evtifeev, V. N. Kornfel'd, T. V. Mal'chenko, and R. Sh. Minnibaev | 257 | 24 |
| Guniting the Lining of Steel-Smelting Furnaces – F. A. Mukhametzyanov, F. F. Ocheretnyuk, and Yu. I. Balashov | 261 | 26 |
| Two-Stage Repair of Stack in Open-Hearth Furnaces – D. I. Vishnevskii | 263 | 27 |
| ROLLED PRODUCTS | | |
| Modernization of a 250 Continuous Wire Mill – A. G. Kuz'menko, E. G. Tsybanev, and L. P. Khandusenko | 265 | 29 |

| | Engl. | Russ. |
|---|---|---|
| Heating Bell Furnaces with Natural Gas – A. I. Terekhova, K. A. Ibatulina, A. P. Litovchenko, I. M. Pavlov, and G. F. Osokin | 267 | 30 |
| New Abrasive Cutoff Wheels – V. A Borisov, S. P. Surov, V. I. Efremov, N. I. Fomkin, L. V. Sokolov, S. N. Komarov, I. Ya. Zhabin, and L. R. Tager | 270 | 32 |
| Flowline for Heat Treatment of Gas Cylinders – R. P. Shmalenyuk, N. I. Khukharev, M. V. Karasekova, and A. V. Komlev | 273 | 34 |
| Use of Large Zinc Blocks in Continuous Galvanizing of Steel Strip – D. L. Grinberg and Yu. G. Komissarchik | 274 | 35 |
| HELP FOR THE SCHOOLS OF COMMUNIST LABOR | | |
| Methods Used by Brigade No. 2 in the Rail and Structural Mill, Azov Steel Plant – B. Polotskii | 276 | 36 |
| THOSE WHO LOOK AHEAD | | |
| Veterans Stay Young in Heart – I. Chirkov | 278 | 38 |
| INDUSTRIAL SAFETY | | |
| Work of the Combine Industrial Health Laboratory – G. V. Dubrovin and V. S. Antonenko | 280 | 39 |
| Using Electrostatic Precipitators to Clean Pellet Roaster Gases – V. G. Vishnyakov, V. P. Dzigan, V. S. Simkin, A. N. Timofeev, and A. M. Shikin | 282 | 40 |
| Rubidium – S. Venetskii | 284 | 42 |
| BOOK REVIEWS | | |
| G. N. Oiks. Steel Production (Technology and Theoretical Principles) – Reviewed by M. M. Privalov | 289 | 45 |


VOLUME 20, NUMBER 5, MAY 1976


| | | |
|---|---|---|
| SOCIALIST COMPETITION | | |
| Organization of Socialist Competition at the Pervoural'sk New Tube Plant – B. A. Mamaev | 295 | 1 |
| Improving Economic Efficiency in Production and Increasing Output from Existing Capacity (Methods Used at the Nizhnii Tagil Metallurgical Combine) – A. Kolbin | 298 | 3 |
| COMRADE FOREMAN | | |
| Technical Progress and the Upgrading System for Foremen – I. E. Filatov and M. A. Pshenichnikov | 302 | 5 |
| TUTORSHIP | | |
| A Major Form of Communist Education for Young People – S. I. Dibrov | 305 | 7 |
| CAST IRON | | |
| Effect of Blast-Furnace Reconstruction – V. A. Shatlov, N. I. Kul'vanovskaya, V. N. Fomenko, and V. V. Taranovskii | 309 | 9 |
| Improved Technology for Ferromanganese Production – I. V. Kotel'nikov, V. V. Didenko, I. Ya. Ustimenko, E. V. Kovyrshin, S. L. Yaroshevskii, and O. K. Anufriev | 312 | 11 |
| Effect of Magnesia on Desulfurizing Power of Blast-Furnace Slags – V. I. Loginov, A. L. Berin, N. M. Yaroshenko, and P. K. Lebed' | 315 | 13 |
| Gas Cleaners for Roasters 306 $m^2$ in Area – M. N. Shvets, A. G. Genshaft, D. G. Mil'grom, A. I. Dalada, and V. V. Sushko | 317 | 15 |
| STEEL | | |
| Statistical Method of Inspection of Production Discipline in Steel-Melting Shops – I. G. Reznik, A. T. Grebeshkov, O. N. Sokolov, and T. I. Podannikova | 321 | 18 |
| Pouring Electric-Furnace Steel with Use of Heat-Insulating Mold Inserts – S. K. Filatov, L. N. Kornilov, I. G. Voronin, I. T. Tapilin, and N. V. Mustafin | 324 | 20 |

| | Engl. | Russ. |
|---|---|---|
| System for Measuring Lance Position in Steel-Melting Baths – É. É. Merker, A. T. Stepanov, V. N. Nikolaev, and V. A. Kulichenko | 325 | 21 |
| Structure of Steel Ingots Treated with Sodium Chloride – A. S. Kharitonov, S. D. Burov, I. I. Zgur'ev, K. G. Trofimova, and N. V. Antonova | 328 | 23 |
| New Developments in Steel-Pouring Technology (Special Show at the Permanent Exhibition of the Achievements of Soviet National Economy) – E. V. Tret'yakov and L. M. Kogan | 331 | 25 |
| **ROLLED PRODUCTS** | | |
| Decrease of Blister Formation on Slabs during Rolling of Sheet Ingots – G. D. Molonov, N. F. Sapelkin, V. S. Zhernovskii, O. I. Romanov, and V. M. Filipov | 334 | 28 |
| Mastering of Lightweight Automobile Wheel Rims – A. V. Mayakin, V. D. Kutsyngi, A. S. Katan, V. S. Makhnin, and I. A. Pleten' | 336 | 29 |
| Production of Small-Section Pipe Billet from Continuously Cast Ingot – I. S. Zhordaniya, V. P. Bulgakov, and G. A. Dzigvashvili | 337 | 30 |
| Straightening Channels with an Increased Slope of the Flange Outer Sides – M. M. Gelerman and N. P. Borodil | 339 | 32 |
| Improving the Surface-Finish Quality of Ground Steel Bars – V. K. Pasechnik, L. I. Safonov, L. A. Yakushina, and L. N. Shurchko | 342 | 33 |
| Air-Plasma Cutting of Blanks for Cylinders – B. E. Dubinskii, V. A. Dernovoi, and V. S. Kozlovskii | 343 | 34 |
| **THE FOREMAN HAS THE FLOOR** | | |
| Thought for the Future – A. F. Baranovskii | 346 | 36 |
| **HELP FOR THE SCHOOLS OF COMMUNIST LABOR** | | |
| Methods Used by Brigade No. 1 (Led by Senior Roller L. P. Kholodov) on the 1200 Five-Stand Mill – E. I. Bulatnikov and L. Usenko | 348 | 37 |
| **LABOR PROTECTION** | | |
| Healthy Working Conditions: Source of Increased Productivity – B. Sergeev | 350 | 38 |
| Safety in Steelmaking Shops – P. I. Get'man | 352 | 39 |
| Ways of Improving Equipment Operation and Repair at Ferrous Metallurgy Plants – N. G. Gavrilenko, N. M. Potapov, and V. I. Dubov | 353 | 40 |
| Entertainment Club Activities – F. S. Khalmanov | 357 | 44 |
| **MEETINGS AND CONFERENCES** | | |
| All-Union Meeting-Seminar at the Exhibition of Achievements of the USSR National Economy (Sharing of Experience by People's Universities of Technical Progress and Economics, USSR Ministry of Ferroues Metallurgy) – I. V. Litvinov | 359 | 45 |


## VOLUME 20, NUMBER 6, JUNE, 1976


| | Engl. | Russ. |
|---|---|---|
| **THE 10TH FIVE-YEAR PLAN: AUTOMATION AND MECHANIZATION** | | |
| Automation in Ferrous Metallurgy – Results and Problems – R. V. Lyambakh | 363 | 1 |
| For the Automation of Ferrous Metallurgy – V. M. Vinogradov | 367 | 3 |
| Mechanization of Difficult and Time-Consuming Operations in Ferrous Metallurgy – Yu. G. Goncharov | 370 | 5 |
| Reports by Enterprise Managers | 373 | 7 |
| **CAST IRON** | | |
| Mechanized Sinter Feed System to Hoppers of a 5000-$m^3$ Blast Furnace – A. N. Gorodetskii, L. M. Arist, E. A. Yarovinskii, and A. E. Kagolovskii | 384 | 14 |
| Automated System to Control Charge Preparation and Feed for a 5000-$m^3$ Blast Furnace – Yu. I. Burgutin, M. Ya. Vol'pert, A. A. Grishkova, B. M. Neginskii, L. I. Rozhavskii, and M. M. Frenkel' | 386 | 15 |

| | Engl. | Russ. |
|---|---|---|
| Monitoring the Position of Mobile Loading Mechanisms – A. V. Drimbo, P. G. Kalinichenko, V. V. Shapovalenko, V. V. Soroka, and A. S. Rylov | 391 | 20 |
| STEEL | | |
| Automatic Stabilization System for Introducing Free-Flowing Material into a Converter – A. I. Belichenko, É. P. Goloviznin, and Yu. V. Bashmakov | 393 | 21 |
| Automatic Feeding of Reducing Agents into a Ladle – A. I. Menyailenko | 395 | 22 |
| Activity Meter for the Determination of the Oxygen Activity in Liquid Metal – O. K. Tokovoi, R. N. Galyamov, A. V. Khokhlov, and A. A. Épov | 396 | 23 |
| Automation of Charging Kilns – V. A. Ablozhei, V. I. Gol'tsev, M. S. Dontsov, and M. T. Isakov | 398 | 24 |
| Mechanization of Repairs in Martin Furnaces at the Dzerzhinsk Factory – I. I. Pashin and N. F. Sycheva | 400 | 25 |
| Contemporary Means of Automating Oxygen-Converter Production Abroad – Yu. Ya. Treister and V. M. Gitter | 401 | 26 |
| ROLLED PRODUCTS | | |
| Interaction of Systems for Automatic Regulation of Thickness and Tension on a 1680 Hot-Rolling Mill – I. B. Fishkin | 406 | 29 |
| System of Optimum Cutting of Bars on 600 Mill – V. I. Gol'tsev, A. A. Zabludovskii, V. I. Kagan, I. K. Menzarev, G. A. Polevoi, G. N. Sidorin, and V. P. Chernoivan | 408 | 30 |
| Relationships of the Roll Speeds of the Universal Stand of a Slabbing Mill – G. N. Kharchenko, A. A. Zemenkov, and V. K. Popov | 410 | 32 |
| Inspecting 1220-mm Gas and Oil Pipelines – I. I. Sergeev, B. S. Malkin, A. R. Kudryavtsev, and V. K. Bronnikov | 412 | 33 |
| Device for Tilting Square Bars – Yu. I. Sotnikov | 415 | 35 |
| Auxiliary Feeder for a Wire Coiler – V. E. Belenkov | 416 | 36 |
| Optimizing the Monthly Chart for Preventive Planned Maintenance of Basic Equipment – V. P. Gusev, V. I. Rumyantsev, and M. E. Soibel' | 418 | 37 |
| Rubber Tube Containers for Pneumatic Tubes – S. E. Rapchinskaya, G. A. Blokh, S. A. Vasyunina, N. P. Chumicheva, N. I. Beda, and L. E. Demina | 419 | 38 |
| LABOR PROTECTION | | |
| Mechanization of Laborious Operations in Iron and Steel Plants and Improving Working Conditions for Women – I. V. Naumkina and L. A. Ermolyuk | 421 | 39 |
| Functional Painting of Metallurgical Equipment – T. A. Pechkova | 422 | 40 |
| SOCIALIST COMPETITION | | |
| An Inexhaustible Source of Creative Initiative – B. V. Chukhnin and B. I. Gavrikov | 425 | 42 |
| Problems in Competition – F. Khalmanov | 427 | 43 |
| Automation Controls Quality (Competing for the 1976 USSR State Prize) – M. Sidorov | 428 | 44 |

VOLUME 20, NUMBER 7, JULY, 1976

| | | |
|---|---|---|
| July 18th – Metallurgists' Day. The Iron and Steel Industry in the 10th Five-Year Plan – M. A. Pertsev | 435 | 1 |
| SOCIALIST COMPETITION | | |
| To New Boundaries – A. I. Klement'ev | 440 | 4 |
| Increasing the Quality and Efficiency of All Labor – M. T. Tolochko | 443 | 6 |
| TUTORSHIP | | |
| Hearts and Minds in the Service of Young People – N. G. Chernokhlebov | 446 | 8 |
| A. D. Osipov, Foreman and Educator (into the Contest) – P. A. Zashivaiko | 449 | 10 |
| PIG IRON | | |
| Use of Vibrating Feeder for Charging the Sintering Machine – R. S. Bershtein and Yu. A. Frolov | 452 | 12 |

| | Engl. | Russ. |
|---|---|---|
| Smelting Conditioned Steel-Making Pig Iron While Operating on High-Magnesium Slags – V. V. Ermolaev, R. S. Vanin, and A. N. Chernyatin | 455 | 14 |
| Organization of Work in the Casting Yard of a Blast Furnace – P. P. Mishin, M. A. Tseitlin, Yu. N. Glushchenko, Yu. M. Kiyashko, and B. A. Astapchik | 457 | 15 |
| Improvement of the Design of Shaft Furnaces for Calcination of Siderite Ores – N. V. Fedorenko, B. N. Zverev, A. G. Zhunev, and E. S. Gusev | 459 | 16 |
| Mechanizing the Cleaning of the Tracks in a Sintering Plant Stockyard – I. L. Kholmetskii and F. P. Kravchenko | 462 | 19 |
| **STEEL** | | |
| Effect of the Quality of Conversion Pig Iron on Production Efficiency – I. I. Kobylyakov | 464 | 21 |
| Manufacture of Steel 60Kh2SMF in an Open-Hearth Furnace – Yu. A. Grushko, I. Ya. Kolesnik, L. M. Sagal'chik, V. I. Karlyuk, and A. N. Rebrov | 467 | 24 |
| Guniting the Main Crown of a 500-ton Open-Hearth Furnace – B. A. Velikin, E. I. Davydenkov, V. A. Deev, P. I. Matsak, T. V. Mal'chenko, V. I. Eftifeev, V. D. Khelemendik, and I. T. Kurkula | 469 | 25 |
| Use of Ladles with a Rammed Siliceous Lining for Pouring Bearing Steel – V. M. Borevskii, T. F. Raichenko, N. G. Antropova, S. V. Tsybur, and Ê. A. Khoinyak | 471 | 27 |
| Repairing Ingot Mold Internal Surfaces Using Paste – N. A. Deineko, V. V. Shakhtarina, G. P. Burakovskii, and L. S. Kalugina | 473 | 28 |
| **SOCIALIST COMPETITION** | | |
| For Steel of the Highest Quality | 475 | 29 |
| **ROLLED PRODUCTS** | | |
| Effect of Technological Parameters of Reeling on Specific Power Consumption – V. Ya. Osadchii, I. G. Getiya, F. D. Mogilevkin, A. P. Shpyrev, V. V. Frolochkin, L. I. Lapin, A. V. Saf'yanov, and M. A. Levshunov | 476 | 30 |
| Increasing the Productivity of a Hot-Rolling Wide-Strip Mill – S. L. Kotsar', G. G. Grigoryan, B. A. Polyakov, M. I. Psel, and I. K. Miroshnikov | 478 | 31 |
| A Roller Guide for Rolling Steel Angles – M. M. Gelerman and N. P. Borodii | 479 | 32 |
| Determination of the Minimum Diameter of the Heads for Drawing Tubes of Carbon Steels – M. G. Kaplun, I. M. Evtushenko, and A. I. Fel'dman | 480 | 33 |
| Nondestructive Quality Control of Rolled Metal – N. V. Stetsenko, V. M. Bolotnyi, and V. S. Gordienko | 481 | 34 |
| Influence of Interstand Tension and Backwater Effect on Shaping Force – D. L. Starchenko and M. I. Chelovan' | 484 | 36 |
| Optimum Roll Grinding Conditions – M. I. Zhurukhin, V. S. Fel'dsherov, and O. B. Bukhvalov | 486 | 37 |
| The Welding of Rolls with a New Wire Electrode – V. G. Shiyan and V. V. Getmanets | 487 | 38 |
| **LOOKING AHEAD** | | |
| Going in the Advance Guard – A. Komanovskii | 490 | 40 |
| **LABOR PROTECTION** | | |
| Programmed Learning in the Rules of Safety Engineering – N. Dzamashvili and S. Gordeeva | 493 | 42 |
| Production Culture in the Open-Hearth Shop – A. P. Protasov and A. F. Tulupov | 495 | 43 |
| **AUTOMATION AND MECHANIZATION** | | |
| Operating Experience Gained with the Introduction of an Automatic Control System at the Cherepovets Metallurgical Plant – Yu. I. Bulatov | 496 | 44 |
| The Union of Labor and Art – G. P. Lebedev | 501 | 48 |
| **HELP FOR THE SCHOOLS OF COMMUNIST LABOR** | | |
| The Effectiveness of Missions for Studying Advanced Experience – B. Sergeev | 504 | 49 |

Engl./Russ.

ECONOMIC KNOWLEDGE TO THE MASSES
The People's University for Scientific, Technical, and Economic Knowledge of the Ukrainian State Institute for the Planning of Metallurgical Plants – A. Robustov ..... 506 50

INTERNATIONAL RELATIONS
To Strengthen Friendship – A. Kalashnikov ..... 508 52

NEW BOOKS
V. A. Romenets, O. V. Yuzov, E. K. Sivaeva, and A. G. Shaleev. The Efficiency of Increasing Steel Quality – Reviewed by P. F. Parasyuk ..... 510 53

VOLUME 20, NUMBER 8, AUGUST, 1976

SOCIALIST COMPETITION
Passing on the Experience of Award Winners to All Workers – V. N. Kuporov and V. A. Doronin ..... 515 1
Collating 24-h Socialist Competition Returns in the Nikopol' Southern Tube Works – M. Zhigailo ..... 519 3

HIGH-QUALITY METAL
The Campaign for Technical Progress and High-Quality Output – B. M. Sergeev and V. G. Litvinenko ..... 523 5

CAST IRON
Blast Furnace Operation with the Blast Mixer Closed – N. M. Babushkin, F. R. Shklyar, P. B. Fedotov, B. B. Vegner, V. M. Antonov, A. A. Buzhinskii, N. Kh. Struchkov, and M. S. Aminov ..... 527 8
A New Longitudinal Seal Design for Sintering Machines – V. N. Sokol, Ya. A. Shlepper, and A. N. Sokol ..... 532 12
Reconditioning of Exhauster Rotors – N. G. Braginets, L. A. Lokh, and L. P. Stambulzhi ..... 533 13
Increasing the Wear Resistance of Ladle Trunnions – P. A. Kachan ..... 535 14
Advanced Methods Used by Gas Plant Operator A. M. Kotenko, Hero of Socialist Labor – A. Ashpin ..... 536 15
Economics of the Improvement of the Quality of Steels and Alloys by Alloying with Rare-Earth Metals – L. N. Ivanov and N. L. Astakhova ..... 538 16
Service Life of the Lining of a Plasma Furnace – A. D. Pilipchatin, I. P. Bas'yas, V. D. Azbukin, O. A. Labunovich, and N. P. Pozdeev ..... 542 18
Determination of the Optimal Open-Hearth Campaign with Respect to the Checkerwork in the Case of Blowing the Bath with Oxygen – S. E. Rozin, M. I. Esin, A. A. Krivosheiko, V. M. Fedchenko, M. K. Musikhina, R. N. Zairulin, and A. I. Zavodilenko ..... 545 20
Dust-Free Coverings to Protect Steel in the Pouring Ladle – A. S. Yutina, S. Ya. Tsypin, M. N. Sorin, Yu. I. Markov, N. D. Karpov, S. Z. Afonin, V. D. Ryazantsev, and V. F. Mikhnevich ..... 548 23

THOSE WHO LOOK AHEAD
No. 4 Brigade Leads – S. Tarabara ..... 550 24
A Mold Lubricant – L. E. Nedodaev, L. A. Rogozhnikova, and A. N. Nikitin ..... 552 25

ROLLED PRODUCTS
Features of Rolling Large Heavy Plate Steel on a 3600 Mill – A. A. Parshin, V. I. Sedov, V. G. Korokhov, L. S. Polonskii, and S. M. Levitan ..... 554 26
Transverse Difference in Wall Thickness of Welded Tubes Reduced on Two- and Multiroll Mills – G. I. Gulyaev and A. K. Zimin ..... 556 27
Shot Peening of Strip-Rolling Rolls – L. D. Devyatchenko, V. D. Golev, L. G. Stobbe, V. A. Petrov, and S. N. Khaikin ..... 559 29
Modernization of the Heating Furnaces of Shape Mills – A. M. Serova, Ya. E. Ioffe, and L. Ya. Vinokurov ..... 560 30

| | Engl./Russ. | |
|---|---|---|
| Wear Resistance of Roller Straightening Machine Tires for Two-Plane Straightening of Heat-Treated Rails – M. L. Fedorov, M. A Popov, N. S. Kobyakov, V. A. Parshin, I. Ya. Vinokurov, D. M. Rabinovich, and V. S. Serebryakov | 563 | 33 |
| An Electric Drive for Crane Mechanisms with Smooth Speed Control – Yu. D. Kapuntsev, V. A. Antonov, S. V. Murinets, E. S. Deriglazov, and R. N. Zainutdinov | 564 | 34 |
| Turning the Rolls of Shape Mills – M. M. Gelerman and N. P. Borodii | 567 | 36 |
| LABOR PROTECTION | | |
| Dust-Free Shot Blasting for the Metallurgical Industry – Yu. D. Gamzaev and V. A. Pryakhin | 568 | 37 |
| ECONOMICS AND SCIENTIFIC ORGANIZATION OF LABOR | | |
| The Placement and Use of Graduated Specialists in Ferrous Metallurgy – O. L. Entov, E. V. Dolgov, and V. V. Sukhareva | 572 | 39 |
| Regulation of Work Processes of Shift Personnel – O. B. Korol' | 575 | 41 |
| Iridium – S. Venetskii. Pictures by V. Petukhova | 577 | 43 |

VOLUME 20, NUMBER 9, SEPTEMBER, 1976

| | | |
|---|---|---|
| Western Siberian Plant Methods in the Service of the Industry. The Course of Socialist Competition for Early Assimilation of the Rated Capacity of Operational and Newly Commissioned Main Metallurgical Shops and Units – M. P. Rybina | 583 | 1 |
| THE 10TH FIVE-YEAR PLAN: EFFICIENCY AND QUALITY | | |
| Reconstruction: A Way of Increasing Efficiency and Raising Product Quality – A. A. Fotov | 588 | 4 |
| SOCIALIST COMPETITION | | |
| The Rise of Creative Initiative – P. G. Goncharov | 592 | 6 |
| CAST IRON | | |
| Optimum Rotation Speed for Sinter Charge Pelletizers – N. K. Gostev, P. V. Lekin, A. G. Neyasov, and R. B. Yusupov | 598 | 9 |
| Desulfurizing Pig Iron with Magnesium Ingots – E. N. Skladanovskii, V. I. Machikin, A. G. Kuzub, M. Z. Levin, V. V. Stepanov, M. A. Zalevskii, G. A. Mashkov, and A. M. Spirin | 600 | 11 |
| Systems for Automatic Control of Hot-Blast Temperature in Paired Parallel Hot-Blast Stove Operation – Yu. A. Reznikov, V. L. Oleshko, V. N. Shitov, D. V. Shipunov, N. G. Bugaevskii, Yu. I. Bykov, and S. V. Korshikov | 605 | 14 |
| Casting Wear-Resistant Iron Armor Plates for Sintering-Machine Chutes – A. I. Stepina, V. V. Zotov, R. A. Adamtsevich, V. V. Vagin, and O. F. Sirenko | 607 | 15 |
| Organizing Replacement of the Blast-Furnace Stack Shell – V. G. Artishchev and S. I. Rubinshtein | 609 | 16 |
| STEEL | | |
| Steelmaking in 130-Ton Converters with Various Blowing Rates and Various Types of Scrap – L. V. Rebrov, M. Ya. Medzhibozhskii, and S. M. Grigorenko | 611 | 18 |
| Quality of Rolled Section Made from Continuously Cast Ingots – I. S. Zhordaniya, V. P. Bulgakov, and G. A. Gamtsemlidze | 615 | 21 |
| Effect of Deoxidizing Method on Quality of Rail Steel – I. Ya. Vinokurov, D. M. Rabinovich, V. I. Syreishchikova, É. L. Kolosova, A. V. Evdokimov, and V. A. Baranova | 617 | 23 |
| Using Sliding Gates in the Converter Shop – M. M. Strekalovskii, G. I. Evchenko, B. P. Okhrimovich, V. G. Bakhcheev, and L. M. Polyakov | 619 | 24 |
| Ingot Molds Made from Spheroidal Cast Iron – A. I. Glushkov and G. I. Konovalova | 621 | 26 |
| Hearth Repairs in Open-Hearth Furnaces – A. G. Elizarov and I. A. Dmitriev | 623 | 26 |

| | Engl./Russ. | |
|---|---|---|
| ECONOMICS FOR THE MASSES | | |
| Provision of Incentives for Reducing Consumption of Refractories – Yu. A. Dolgorukov and R. I. Abashkina | 624 | 27 |
| HELP FOR THE SCHOOLS OF COMMUNIST LABOR | | |
| Methods Used by N. G. Minachenkov, Steelmaking Brigade Leader at the Kommunarsk Plant – A. I. Lisachenko | 627 | 29 |
| ROLLED PRODUCTS | | |
| The Effect of Centering of the Round on Tubing Quality – V. Ya. Osadchii, V. V. Frolochkin, F. D. Mogilevkin, G. A. Gorbunov, A. P. Shpyrev, L. I. Lapin, A. V. Saf'yanov, A. D. Sheikh-Ali, and S. I. Getiya | 630 | 31 |
| The Effect of Drawing Speed on Wire Quality – I. T. Borodavkin and A. S. Mikhailov | 632 | 32 |
| The Reconstruction of Ball-Rolling Equipment – É. Ya. Klassen, V. V. Zadumin, and V. I. Basalaev | 634 | 34 |
| Modernizing a Universal Plate Mill – A. I. Yarmolenko, Z. P. Karlanskii, and V. G. Mudrov | 635 | 35 |
| Reconstruction, a Means of Increasing Labor Productivity – G. Z. Pykhteev | 637 | 36 |
| Electrospark Roughening and Strengthening of Thin-Sheet Cold Mill Rolls – B. I. Timoshenko and V. N. Morozenko | 638 | 36 |
| Centralization of Rolling Equipment Repairs (A Discussion) – O. B. Korol' | 640 | 38 |
| Organizing the Repairs of the Roll Bearings of Modern Rolling Mills – N. A. Zheltonozhskii, A. I. Stal'skii, and E. N. Likhachev | 643 | 40 |
| Errata | 644 | 41 |
| HELP FOR THE SCHOOLS OF COMMUNIST LABOR | | |
| The Experience of No. 2 Crew of the 250 Small-Shape Mill of Chelyabinsk Metallurgical Plant – O. S. Shishikina | 645 | 42 |
| LABOR SAFETY | | |
| Improving the Working Conditions of Pourers – Yu. A. Klimov and V. V. Gukas'yan | 647 | 43 |
| NEW BOOKS | | |
| E. N. Tikhomirov. Combined Blast for Blast Furnaces – Reviewed by I. G. Tovorovskii | 648 | 43 |
| The Living History of Metallurgy – Reviewed by V. Karpushchenko | 650 | 44 |


## VOLUME 20, NUMBER 10, OCTOBER, 1976


| | | |
|---|---|---|
| Schools of Communist Labor – A Vital Source of Tuition for Workers – V. A. Podzerko | 655 | 1 |
| HELP FOR THE SCHOOLS OF COMMUNIST LABOR | | |
| Advanced Methods Schools in the Service of the Five-Year Plan – N. M. Milovatskii and L. I. Maksimova | 658 | 2 |
| Study and Dissemination of Advanced Methods at the Volgograd Tube Plant – B. M. Lisovskii and N. I. Kalinkin | 662 | 5 |
| SOCIALIST COMPETITION | | |
| Organization of Socialist Competition for Greater Efficiency in Production – V. V. Kondrat'ev | 664 | 6 |
| Competition and the Plan – F. Khalmanov | 668 | 8 |
| CAST IRON | | |
| Material-Resource Economy in Blast-Furnace Production – I. A. Kasimov | 670 | 10 |
| Improved Appearance of Pig Iron – E. N. Skladanovskii, G. A. Mashkov, and A. L. Livshits | 677 | 14 |
| Operation of an Automatic System for Monitoring the Burn-Through of Air Tuyeres – Yu. A. Reznikov, V. L. Oleshko, and F. A. Gridnev | 678 | 15 |
| Improving the Ignition of the Sinter Charge – V. M. Ivanov, V. I. Gubanov, Yu. I. Voroshilov, M. A. Usov, and L. N. Karyshev | 680 | 16 |
| THOSE WHO LOOK AHEAD | | |
| Two Decades at the Hearth – L. Tychinina | 683 | 17 |

STEEL

Influence of Teeming Technique on Ingot Quality – A. F. Bukina, G. A. Chikalenko, and N. G. Azarova ..... 685 19

Reducing the Cases of Plug Seizure during the Pouring of Steel – L. N. Nerubashchenko, D. S. Efimova, and N. G. Aleinikov ..... 687 20

Erosion Protection for Ingot Stools – S. V. Leporskii, G. I. Nalcha, O. V. Trifonov, G. G. Kondratova, and G. P. Pak ..... 690 22

Overhaul of an Open-Hearth Furnace – V. G. Artishchev ..... 691 23

Use of Graphite–Fireclay Plugs during Teeming of Stainless Steel – M. I. Flerova, V. A. Stankevich, L. R. Ostrovskii, and R. F. Pershina ..... 693 25

Geometric Parameters of Through Ingot Molds – V. V. Abramov, I. G. Borisenko, A. A. Budnik, A. K. Makarenko, V. A. Kurganov, and P. D. Stets ..... 695 26

HELP FOR THE SCHOOLS OF COMMUNIST LABOR

A Million Tons of Steel from One Aggregate – A. M. Bul'skii, V. I. Yakimenko, N. K. Pashchenko, E. G. Gryzlov, and A. A. Fedyukin ..... 697 27

ROLLED PRODUCTS

Increasing the Precision of Sheet Rolling and Saving Metal – Yu. V. Konovalov ..... 669 28

Reduction of Residual Stresses in Railroad Rails – M. I. Fedorov, M. A. Popov, N. S. Kobyakov, A. I. Pozdeev, I. Ya. Vinokurov, D. M. Rabinovich, and V. S. Serebryakov ..... 702 30

Production of Cold-Rolled Tubes of Diameter Greater Than 250 mm – Yu. A. Mednikov, V. G. Zimovets, O. Ya. Rabinovich, V. I. Kornilov, V. K. Khristenko, V. V. Belov, and V. I. Ryabushkin ..... 704 32

MORE ECONOMIC USE OF METAL

Increasing the Tube Accuracy Rolled on a Pilger Mill – V. V. Ermakov, Yu. V. Polyurovskii, E. I. Karpov, S. A. Reznikov, N. V. Artemov, S. A. Borisenko, B. N. Matveev, I. G. Getiya, L. M. Troshchenko, A. A. Kashira, E. I. Tulainov, L. G. Ermakova, N. G. Zolotenkova, V. I. Elmanov, and V. I. Shipulin ..... 706 33

Mechanization of the Replacement of Worn Linings of Continuous Furnaces – P. B. Maikher, P. S. Maslei, and V. K. Pankov ..... 709 35

Organizing the Storage of Rolling-Mill Rolls – A. N. Moskalev and A. L. Isupov ..... 710 36

ECONOMICS AND THE SCIENTIFIC ORGANIZATION OF LABOR

Improving the Quality of Spare Parts, an Important Condition for Increasing Production Effectiveness – Yu. D. Kostin, A. L. Ladyzhenskaya, and S. A. Sukhostat ..... 712 37

Lining the Grooves of Cable Blocks with Caprolon – A. F. Orlov, R. B. Trakshinskii, and V. P. Dolzhikov ..... 715 40

INDUSTRIAL SAFETY

Improving Working Conditions by the Organization of Standard Working Areas – L. V. Tutova and G. F. Odintsova ..... 717 43

Quality – The Main Thing – I. Chirkov ..... 719 42

The Club of the Happy and Resourceful in the Exhibition of Achievements of the National Economy of the USSR – I. Danilevich ..... 721 44

## VOLUME 20, NUMBER 11, NOVEMBER, 1976

Improved Conditions, Labor Protection, and Medical Services for Metallurgists – I. D. Novikov ..... 729 1

SOCIALIST COMPETITION

Efficiency and Quality – the Most Important Factors – N. I. Drozdov ..... 734 3

A Union of Rivals – A. Molgachev and I. Chirkov ..... 738 6

The 250th Anniversary of the Verkh-Isetsk Metallurgical Plant – V. S. Ozhiganov ..... 741 8

Engl./Russ.

CAST IRON
Using Pellets with Various Properties in the Blast Furnace – V. B. Kolmogortsev, L. S Tokarev, and V. N. Prokhorov ..... 746 11
A Fluidized Bed Cooler for Iron-Ore Pellets – V. M Dement'ev, S. M. Grafman, A. N Vanzha, E. M. Braverman, V. M. Malyi, and A. F. Lyasota ..... 751 14
Improving the Sealing of the Side Gaps of a Sintering Machine – S. F. Koloda ..... 753 16
Improving Blast-Furnace Melting for the Purpose of Increasing Pig-Iron Quality (Results of the All-Union Scientific–Technical Seminar) – L. G. Salamatov ..... 756 18

THOSE WHO LOOK AHEAD
The Path of a Man – V. Gusakov ..... 759 19

STEEL
Melting 03 Electrical Steel in Oxygen Converters – V. A Sinel'nikov, M. P. Kolyasnikov, V. D. Erokhin, A. P. Potrusaev, R. M. Ivanov, M. A. Bogatkin, M. L. Shul'kin, S. P. Karpov, and V. N. Sorokin ..... 762 21
Controlling the Electrical Condit ons of an Increased-Capacity Electric-Arc Melting Furnace – N. T. Nikokoshev, V. A. Khves'ko, and V. I. Yakovlev ..... 765 23
Monolithic Linings for Steel-Teeming Ladles – O. V. Tantsyrev, N. N Aksyuchits, B. S. Glazyrin, Yu. V. Lyapin, E. D. Larionov, Yu. A. Starkov, V. G. Flyagin, and L. I. Solodova ..... 768 24
Fitting Molds with Heat-Insulating Inserts – M. I. Beilinov, V. Ya. Minevich, V. B. Lyadnov, Yu. G. Dubina, S. N. Petrov, and L. G. Volkov ..... 770 26

HELP FOR THE SCHOOLS OF COMMUNIST LABOR
Organizing the Labor of Ferroalloy Melters – V. D. Zhila, V. A. Voloshanenko, P. A. Brosalin, and E. V. Gulevskii ..... 772 27

ROLLED PRODUCTS
Mastering the Rolling of Shapes on a Single Pass Mill – N. P. Skryabin, I. G. Volkov, B. M. Mel'nikov, A. G. Batalov, A. V. Peskov, Yu. A. Korkodinov, I. I. Shkurko, and O. B. Kutsenko ..... 776 30
Mastering the 140 Sizing Mill Installation – V. Ya. Osadchii, F. D. Mogilevkin, I. G. Getiya, L. I. Lapin, A. V. Saf'yanov, A. P. Shpyrev, V. V. Frolochkin, and M. A. Levchunov ... 779 32
The 1500 Blooming Mill – K. S. Drozdetskaya and V. A. Bykov ..... 783 35
Increasing the Stability of a Straightening Instrument – V. I. Derevyanko, N. I. Beda, V. I. Andreev, B. I. Ginzburg, and A. B. Lukashevich. ..... 786 37

LABOR PROTECTION
Improving Labor Conditions during Preparation and Feeding Deoxidizers to Steel-Teeming Ladles – A. P. Protasov ..... 788 38
Progressive Methods for Purifying Industrial Discharges – A. A. Pozdeev, Yu. V. Bobylev, Yu. L. Zmeev, V. M. Kavtrev, F. A. Radin, and A. G. Korobov ..... 790 39
Mechanization of Labor-Consuming Processes at the Novo-Lipetsk Metallurgical Plant – I. V. Frantsenyuk and V. V. Val'tsov ..... 792 41
Bismuth – S. Venetskii ..... 795 43

## VOLUME 20, NUMBER 12, DECEMBER, 1976

In Honor of the Eleventh Congress of the Trade Union of Iron- and Steelworkers (70 Years of the Trade Union of Iron- and Steelworkers) ..... 803 1

SOCIALIST COMPETITION
The Tasks of the Party Will Be Fulfilled – Ya. P. Osadchii ..... 807 3
The Effectiveness of the Collective's Labor – P. E. Osipenko ..... 809 4
Experience in Planning the Social Development of Collectives in Iron and Steel Plants – V. A. Minenko and P. G. Kurilov ..... 812 6

| | Engl. | Russ. |
|---|---|---|
| CAST IRON | | |
| Averaging the Iron-Ore Materials Placed in Storage for the Sintering Mill at the Krivoi Rog Metallurgical Plant – V. P. Mirshavka, I. L. Kholmetskii, L. A. Gorskii, and I. I. Dudka | 817 | 8 |
| Regulating Hearth Processes by Varying the Parameters of the Air Tuyeres – V. I. Loginov, G. Yu. Kryachko, and I. L. Kolesnik | 820 | 11 |
| Rapid Method of Conducting a Class II Repair on a 2300-$m^3$ Blast Furnace – A. V. Volodarskii, V. G. Shcherbak, and N. I. Samokhin | 823 | 13 |
| A Skip with a Balanced Skate Suspension – V. V. Kalyakin, V. N. Kitaev, A. V. Bliskun, P. I. Kovalev, and M. F. Shipulin | 827 | 16 |
| STEEL | | |
| Composition Standardization of Scrap Metal in the Charge – M. Ya. Medzhibozhskii, V. S. Shemyakin, A. A. Lykin, A. P. Varshavskii, and V. S. Zhernovskii | 829 | 17 |
| Pouring of Steel under Slag from Exothermic Briquets – I. G. Voronin, O. M. Chekhomov, S. K. Filatov, A. S. Khmelev, R. A. Robak, and L. G. Shub | 832 | 19 |
| Improving the Pouring Technology of the Low-alloy Steel 20KhG2B – V. I. Khmirov, I. G. Volkov, V. M. Khokhlov, A. N. Nikitin, and Yu. S. Shelestyukov | 834 | 20 |
| A Riser for Casting Layered Ingots – É. V. Shevbunov, V. G. Ovsyannikov, A. A. Tokarenko, A. L. Gapshenko and N. N. Fursov | 836 | 22 |
| Preparation of Mixtures for Casting Steel – G. A. Chikalenko, A. F. Bukina, and V. N. Ferapontova | 838 | 23 |
| THOSE WHO LOOK AHEAD | | |
| Always with People – V. Chernolutskii | 841 | 25 |
| ROLLED PRODUCTS | | |
| Rolling Grooved Strips on a Continuous Strip Mill – V. L. Romanchenko, A. S. Natapov, E. G. Tsybanev, B. V. Khovrin, A. I. Shevtsov, and V. I. Smolii | 844 | 27 |
| The Effect of Hydraulic Profiling of Operating Rolls on the Cross-sectional Thickness Variability of Strips – I. V. Frantsenyuk, A. P. Shapovalov, V. V. Shvetsov, A. K. Gruznov, and Yu. A. Mukhin | 846 | 28 |
| Adjusting Press and Rolling Line Units for Wheel Production – M. I. Staroseletskii, V. N. Krashevich, M. S. Valetov, V. I. Shevchenko, and Yu. G. Tubol'tsev | 848 | 30 |
| Impact Action Mechanisms for Changing the Rolls in Tube Cold-rolling Mills – R. P. Ermakovich, G. É. Gokhberg, and A. S. Tkachenko | 850 | 32 |
| Effectiveness of High-speed Grinding for Removing Defects from Rolled Products – A. V. Murdasov, V. K. Pasechnik, and L. V. Drozdetskaya | 852 | 34 |
| THOSE WHO LOOK AHEAD | | |
| All His Life a Search – V. Norkin | 854 | 34 |
| LABOR SAFETY | | |
| Mechanization and Automation – the Basis of Improving Working Conditions in Production (from the Experience of the Operation of V. I. Lenin Dnepropetrovsk Tube-Rolling Plant) – Z. V. Molchanova | 857 | 36 |
| Dehydrating Rolling-mill Scale – A. V. Erokhin, S. I. Spiridonova, D. S. Voronin, L. V. Turusov, and A. M. Vysotskii | 860 | 38 |
| 275 Years of Ural Plant Metallurgy – N. A. Mezinin | 861 | 39 |
| BOOK REVIEWS | | |
| I. G. Zel'tser and N. G. Braginets. Library of the Working Metallurgist on Safety Engineering for the Converter Operator – Reviewed by E. V. Tret'yakov | 864 | 40 |
| INDEX | | |
| Author Index, Volume 20, Numbers 1-12, 1976 | 869 | |
| Tables of Contents, Volume 20, Numbers 1-12, 1976 | 875 | |